

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14, 16-22 and 24-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (US# 5971110) in view of Kiryu (US# 4619156).

Martin discloses an actuator including; a rotor 12, a screw 2 and sleeve 15, and a gear reduction mechanism driving the sleeve. Martin lacks the explicit disclosure of a harmonic gear reduction. Kiryu teaches a harmonic gear reduction unit including; a rotor 2 defining a bearing surface having a non-circular profile, and a radially flexible annular sleeve 3 defines a facing bearing surface the arrangement between the facing bearing surfaces being such that said flexible sleeve adopts a non-circular shape complementary to said profile of said bearing surface of said rotor, said flexible sleeve is restrained against rotation and is in toothed meshing engagement with a circular drive ring 4 at at least two contact regions which are equidistantly spaced apart, said actuator being operable such that rotation of said rotor causes said flexible sleeve to flex radially at each of said contact regions to generate a rolling wave which causes rotation of said

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contact regions and of said drive ring, and whereby said drive ring rotates at a reduced rotational velocity as compared to the rotational velocity of said rotor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the harmonic gearing taught by Kiryu in the brake of Martin to provide appropriate gear reduction within a compact arrangement.

Regarding claims 2-3, the examiner takes official notice that magnetic arrangements on motor rotors are well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a plurality of magnets on the rotor of Martin and Kiryu to facilitate proper motor operation.

Regarding claim 4, see collar 3a.

Regarding claim 7, note Martin discloses a keyed arrangement (col. 4, lines 1-8).

Regarding claim 29, Martin discloses housing 5-6 with stator (unlabeled).

Regarding claim 30, Martin discloses a cover surrounding motor 12.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (US# 5971110) and Kiryu (US# 4619156) as applied to claim 1 above, and further in view of Humphreys (US# 3604287).

Martin and Kiryu disclose all the limitations of the instant claims with exception to the explicit disclosure of ball bearings. Humphreys discloses a similar device and further teaches ball bearings (fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include ball bearings, such as taught by

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Humphreys, in the device of Martin and Kiryu to reduce friction, thereby increasing the durability of the device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reimann et al, Baudendistel et al, and Ohm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley T. King whose telephone number is (571) 272-7117. The examiner can normally be reached on 11:00-7:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley T King/

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Primary Examiner, Art Unit 3657

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